REMARKS

The present document is filed in response to the final office action dated June 10, 2011 ("Office Action").

Applicants have amended the Specification by deleting the incorrect ratios in Referential Example 11 at page 64, line 31 and Example 9 at page 69, line 1 and replacing "Referential Example 1" with "Referential Example 11." Support for the amendments is discussed below.

Applicants have also amended claims 1, 8, and 10 to more particularly point out and more distinctly claim the subject matter of their invention, support for which appears in original claims 1 and 4 and in Table 1 of the Specification.[1] The amendment to claim 1 has necessitated cancellation of claims 4 and 12-14 and dependency changes to claims 6, 7, 24, and 29-31. Further, Applicants have added new claims 40-43. Support for new claims 40 and 41 appears in original claims 5 and 15, respectively. New claims 42 and 43 each can find their support in original claim 1 or 10, as well as in Referential Example 1 and Example 1 of the Specification at page 55, line 30 through page 56, line 23; and page 66, lines 15-22.

No new matter has been introduced.

Upon entry of the proposed amendment, claims 1-3, 6-11, 22-26, and 29-43 are pending. The Applicants respectfully request that the Examiner reconsider this application in view of the following remarks.

Objection to the Specification

The Examiner objects to the amendment of the Specification for introducing new matter.

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[1] The new recitation "not exceeding 850 μm in diameter in 100 mass% of all the particles" in amended claim 1 is fully supported by the Specification. As shown in Table 1 of the Specification, the composition produced in each of the referential examples has no particles with diameters exceeding 850 μm. Thus, the Specification adequately supports the new size distribution limitation recited in claim 1. In this connection, Applicants would like to point out that a limitation added to a claim does not have to be set forth verbatim in the Specification. The Federal Circuit, in reversing a 35 U.S.C. § 112, first paragraph rejection, held that there was adequate written description support for applicant's claim limitation, despite the fact that it was not set forth "*in haec verba*" (i.e., "in these words" or "verbatim") in the specification. See *In re Wright*, 9 USPQ2d 1649 (Fed. Cir. 1989).

For the sole purpose of moving this application forward, Applicants have cancelled the last amendment to the Specification, thereby obviating this new matter objection.

Further, the Examiner maintains the objection to the Specification for informalities, i.e., inconsistencies between the mass ratios recited in two examples, i.e., Examples 8 and 9, and those recited in Referential Examples 10 and 11, to which the two examples refer, respectively.

To overcome this objection, Applicants have amended the Specification by deleting the ratio in Referential Example 10 and that in Example 9 (referencing Referential Example 11), both of which do not dove with those calculated from the amounts of the salts that were used to prepare the complex oxide hydrates described in Referential Examples 10 and 11, respectively. As discussed below, the proposed amendment fully addresses this informal issue.

As shown in Referential Example 10, a complex oxide hydrate of zinc and silicon was prepared by mixing "**114.5** parts by weight of zinc sulfate (made by Wako Pure Chemical Industries, Ltd.) and **17.6** parts by weight of sodium silicate powder (made by Wako Pure Chemical Industries, Ltd.)." As presented in Applicants' response to the last office action, the mass ratio of zinc to silicon, according to the preparation procedure described above, should be 90/10, i.e., (**114.5**x65.39/161.45)/(**17.6**x28.09/122.06). See page 10, second paragraph, lines 5-9. Thus, the zinc-to-silicon ratio is incorrectly stated in Referential Example 10 at page 64, line 16 as "85/15." This error has been corrected by deleting the recitation "(mass ratio of zinc and silicon: 85/15)" from this referential example.

Turning to Example 9, which describes production of a zinc/aluminum-containing composition, Applicants have replaced "Referential Example 1" at page 69, line 1 with "Referential Example 11," which, among the three possible referential examples, is the only referential example that describes production of a complex oxide hydrate that contains zinc and aluminum. As shown in this replacement referential example, a complex oxide hydrate of zinc and aluminum was produced by mixing "**132.9** parts by

weight of zinc sulfate (made by Wako Pure Chemical Industries, Ltd.) and **110.1** parts by weight of aluminum sulfate 14 - 18 hydrate (made by Wako Pure Chemical Industries, Ltd.)." See page 64, lines 10-12 and 24-26. As presented in Applicants' response to the last office action, according to the preparation procedure described above, the mass ratio of zinc to aluminum should be 85/15, i.e., (**132.9**x65.39/161.45)/(**110.1**x26.98x2/630.36). See pages 9-10, carryover paragraph, lines 7-12. Thus, the composition of Example 9, referring to Referential Example 11, should have "85/15" as a zinc-to-aluminum ratio, which is incorrectly stated in Example 9 at page 69, line 1 as "90/10." This error has been corrected by deleting the recitation "(mass ratio of zinc and aluminum: 90/10)" from this example.

Applicants respectfully submit that the proposed amendments to the Specification have rendered the informality objection moot.

Rejection under 35 U.S.C. § 112

The Examiner rejects claims 1-4, 6-14, 22-26, and 29-36 for failing to comply with the written description requirement. See the Office Action, page 3, Item 4, first paragraph.

Applicants have amended claims 1, 8, and 10 by replacing the ratio "82/18 - 99/1" with "50/50 - 99/1," which can find its support in original claim 1. In other words, amended claims 1, 8, and 10 are fully supported by the Specification. So are claims 2-4, 6, 7, 9, 11-14, 22-26, and 29-36, all of which depend from claim 1, 8, or 10.

For a complete record, Applicants would like to address the Examiner's assertion that the Specification does not have adequate support for the mass ratio of "82/18 - 99/1," a sub-range of the ratio "50/50 - 99/1" recited in claims 1, 8, and 10. More specifically, according to her, the Specification fails to provide support for the preferred ratio due to inconsistencies of the mass ratios recited in two examples, i.e., Examples 8 and 9, with those recited in Referential Examples 10 and 11, to which the two examples refer. Applicants respectfully traverse.

As discussed above, Referential Examples 10 and 11 of the Specification describes two complex oxide hydrates: one having the zinc-to-silicon ratio of "90/10" and

the other having the zinc-to-aluminum ratio of "85/15," respectively. See page 10, first two paragraphs. As also discussed above, the Specification has been amended in a manner so that the mass ratios in both Examples 8 and 9, if any, are consistent with the experimental procedures described in Referential Examples 10 and 11. As such, the amended Specification consistently supports a water-absorbent resin composition having a complex oxide hydrate containing zinc and silicon with a mass ratio of 90/10 or zinc and aluminum with a mass ratio of 85/15. As such, the sub-range "82/18 - 99/1" is fully supported by the amended Specification.

Rejection under 35 U.S.C. § 103

The Examiner rejects claims 1-4, 6-14, 22-26, and 29-36 and 29-39 for obviousness over Takai, et al., US Patent 6,284,362 ("Takai") in view of Kurihara, et al., US Patent 5,110,586 ("Kurihara"). See the Office Action, page 6, Item 9. Applicants respectfully traverse.

Claim 1 will be addressed first. This claim is drawn to a water-absorbent resin composition containing particles of absorbent resins.

To more distinctly claim the subject matter of their invention, Applicants have amended claim 1 by limiting it to a particle size distribution, i.e., diameters exceeding 150 μm in a proportion of not less than 90 mass% of all the particles, exceeding 300 μm in a proportion of not less than 60 mass% of all particles, and not exceeding 850 μm in 100 mass% of all particles. Note that the composition of amended claim 1 is subsumed in original, now-cancelled claim 4.

Original claim 4 is directed to a water-absorbent resin composition containing particles with diameters exceeding 150 μm and not exceeding 850 μm in a proportion of not less than 90 mass% of all the particles, and also exceeding 300 μm in a proportion of not less than 60 mass% of all the particles. As shown in Table 1 of the Specification, none of the compositions produced in all of the 9 referential examples has particles with diameters exceeding 850 μm. For the sole purpose of moving this case forward, claim 1 has been amended to exclude certain compositions covered by original claim 4, i.e., those containing particles exceeding 850 μm in diameter.

In short, amended claim 1 is a somewhat narrower version of original claim 4. Thus, successful traverse of the ground for rejecting claim 4 as applied to amended claim 1, a narrower version of claim 4, would establish non-obviousness of claim 1, as amended, in view of the two cited references. Applicants submit that, for at least the two reasons set forth below, the ground for rejecting original claim 4 does not apply to amended claim 1.

I

In the Office Action, the Examiner rejects claim 4, asserting that the particle size distribution limitation recited in this claim is suggested by Takai. See pages 6 and 7, carryover paragraph. It is clearly the Examiner's position that Kurihara does not teach or suggest the above-mentioned particle size distribution limitation. Indeed, she does not rely on it to reject claim 4. As pointed out above, Applicants have limited claim 1 to particles, none of which has a diameter exceeding 850 μm. As discussed below, this particle size distribution limitation patentably distinguishes amended claim 1 from Takai, taken alone or in combination with Kurihara.

According to the Examiner, Takai teaches a water-absorbent resin composition having a "particle size" ranging from 200 μm to 700 μm and preferably from 250 μm to 600 μm, the particle size distribution greater than 100 μm and less than 1000 μm being 90 mass%, or preferably > 95mass%. See the Office Action, page 6, Item 9, third paragraph, lines 1-4. Note that the word "**average**" preceding "particle size" has been omitted from the above-cited Takai teaching. Based on this incomplete citation, the Examiner proceeds to conclude, incorrectly, that the size distribution of the particles in the composition taught in Takai, which have sizes preferably ranging from 250 μm to 600 μm, is substantially similar to that required by that recited in original claim 4, now in amended claim 1, i.e., diameters exceeding 300 μm in a proportion of not less than 60 mass% of all particles. See the Office Action, page 6, last paragraph, lines 4-7.

Likewise, the Examiner has also omitted the word "**average**" in another Takai teaching cited by her. Namely, particles larger than 700 μm in "size" have a lower absorption speed; and particles not less than 200 μm in "size" are easier to handle. See

the Office Action, pages 6-7, carryover paragraph, lines 7-13. Again, based on this second incomplete citation, the Examiner proceeds to conclude, incorrectly, that a skilled artisan would have been motivated to bring the particle size below 700 μm and above 200 μm to arrive at original claim 4, now amended claim 1. *Id.*

As a matter of fact, Takai teaches producing an absorbent composition having an **average** particle size of 200 μm to 700 μm or 250 μm to 600 μm and having the particle size distribution between 100 μm and 1000 μm in an amount not less than 90 or 95 mass%. See column 16, lines 22 to 26. In addition, it teaches that particles having an **average** size of 700 μm or less have an improved absorption speed and particles having an **average** size of 200 μm or more are easier to handle. See column 16, lines 27-34.

It is respectfully requested that the Examiner consider amended claim 1 in view of (i) the Takai teachings as correctly presented in the preceding paragraph and (ii) the new particle size distribution limitation now recited in this claim. For the reasons set forth below, Applicants submit that Takai does not render obvious amended claim 1 reciting the new limitation of "diameters not exceeding 850 μm in 100 mass% of all particles."

It is clear that the size range "200 μm to 700 μm" mentioned in Takai does **NOT** refer to a size distribution in a water-absorbent resin composition; rather, it refers to a range, in which an **average** size of the particles in a water-absorbent resin composition can fall. As such, in a composition featuring an **average** particle size of 200 μm, more than 50% particles may have sizes not exceeding 200 μm; and, on the other hand, in a composition featuring an **average** particle size of 700 μm, more than 50% particles may have sizes not below 700 μm. In short, Takai teaches that the particle size distribution in a water-absorbent resin composition can be any value. A skilled artisan, combining this Takai teaching and the above-mentioned Takai teachings about the particle size distribution and **average** size range, would have concluded that the particle size distribution in a water-absorbent resin composition can be any value as long as they have a size range of 100 μm to 1000 μm in an amount not less than 90 or 95 mass% and have an **average** size of 200 μm to 700 μm.

A skilled person in the art would have expected that, as the **average** size is raised to 700 μm, the percentage of the particles in a composition that have sizes exceeding 850 μm is also raised; and a substantial percentage of the particles can have sizes exceeding 850 μm. Thus, the water-absorbent resin composition taught in Takai is not the same as the composition of amended claim 1 that is limited to all particles with sizes not exceeding 850 μm.

Takai, as pointed out above, teaches that the absorption speed of a water-absorbent resin composition can be improved by limiting the **average** size of the particles to 700 μm or less. As also pointed out above, Takai teaches that the composition features a particle size distribution between 100 μm and 1000 μm. In view of these two teachings, a person skilled in the art would not have been motivated by this reference to keep the sizes of all particles in a water-absorbent resin composition below 700 μm or below 850 μm required by amended claim 1 as long as they are below 1000 μm and have an **average** size of not above 700 μm. In short, Takai does not suggest amended claim 1, which is directed to a water-absorbent resin composition that contains all particles with diameters not exceeding 850 μm.

Kurihara does not cure the deficiency of Takai, i.e. failure to teach or suggest a water-absorbent resin composition containing all particles with diameters not exceeding 850 μm. Consistent with the Examiner's position, nowhere does this reference mention a particle-containing composition used for water absorption, let alone the sizes of the particles, e.g., diameters not exceeding 850 μm, as required by amended claim 1.

Thus, Takai and Kurihara does not suggest amended claim 1, reciting the new limitation "diameters not exceeding 850 μm in 100 mass% of all particles."

II

Amended claim 1, as pointed out above, recites another limitation, i.e., diameters exceeding 300 μm in a proportion of not less than 60 mass% of all particles. For the reasons set forth below, this limitation, different from the new one discussed in detail in Part I above, also confers patentability on amended claim 1 over Takai and Kurihara.

Any *prima facie* case of obviousness against amended claim 1 based on these two references can be successfully rebutted by a showing of the **criticality** of the particle size distribution required by this claim, as amended.

According to MPEP § 2144.05 III:

> Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the **criticality** of the claimed range....[T]he applicant must show that the particular range is critical, generally by showing that the claimed range achieves **unexpected** results relative to the prior art range (emphases added).

As shown in the Specification, the water-absorbent resin compositions described in both Examples 1-6 and Referential Examples 1-6 each had particles with diameters exceeding 300 μm in a proportion of 74 to 85 mass%, which meets the particle size distribution requirement recited in amended claim 1, i.e., diameters exceeding 300 μm in a proportion of not less than 60 mass%; and, by contrast, the water-absorbent resin composition described in both Comparative Example 1 and Referential Example 7 had particles with diameters exceeding 300 μm in a proportion of 55 mass%, which fails to meet the above-mentioned "not less than 60 mass%" requirement. See Table 1.

As also shown in the Specification, the absorption property under the pressure (Table 1) and the deodorizing property (Table 2) of each composition prepared in both Examples 1-6 and Referential Examples 1-6 were **unexpectedly** better than those of the composition prepared in both Example 1 and Referential Example 7.

In sum, the particle size distribution required by amended claim 1, i.e., diameters exceeding 300 μm in a proportion of not less than 60 mass% of all particles, is **critical** to conferring the **unexpectedly** better properties of the claimed composition.

As discussed above, Takai teaches that the particle size distribution in a water-absorbent resin composition can be any value as long as the particles have a size range of 100 μm to 1000 μm in an amount not less than 90 or 95 mass% and an average size of 200 μm to 700 μm. See page 15, last paragraph, last sentence. In other words, the particle size distribution range, taught in Takai, is unlimited or indefinite. Thus, Takai

does not teach the **critical** particle size distribution range required by amended claim 1. Nor does Kurihara. Indeed, this reference does not even mention an absorbent resin composition, let alone the **critical** range of the particle size distribution, e.g., exceeding 300 μm in a proportion of not less than 60 mass% of all particles, as required by amended claim 1.

It is submitted that the unexpected results described above can successfully rebut any *prima facie* obviousness based on Takai and Kurihara against amended claim 1.

III

For the reasons set forth in Parts I and II above, amended claim 1 is not rendered obvious by Takai and Kurihara. Nor are claims 2, 3, 6-14, 22-26, and 29-36 and 29-39, all of which require the particle size distribution recited in claim 1.

New Claims 40-43

New claims 40 and 41 are drawn to a water-absorbent resin composition. Both claims depend, directly or indirectly, from claim 1. For the same reasons set forth in Parts I and II above, these two new claims, like claim 1, are not rendered obvious by Takai and Kurihara.

Turning to new claim 42, which covers a water-absorbent resin composition, the claimed composition is produced by a dry blend method, i.e., blending a water-absorbent resin and a complex oxide hydrate, both in dry powder forms. As discussed below, this claim is not anticipated or rendered obvious by Takai and Kurihara.

The composition of claim 42, as pointed out above, is produced by a dry blend method. A skilled artisan, in view of the Specification (e.g., at page 32, line 10, and page 66, line 15-22), would readily know that the complex oxide hydrate particles in this composition, produced by a dry blend method, can only be **on the surfaces** of the water-absorbent resin particles.

By contrast, the water-absorbent resin composition taught in Takai ("the Takai composition") is produced by (1) mixing a micro-filler (containing silicon oxide or aluminum oxide) with a water absorptive resin that has **NOT** yet been dried after polymerization, (2) drying the thus-produced mixture, and (3) grounding the dried

mixture. See column 13, lines 36-41. As pointed out in Takai, the microfiller particles are **inside** the water-absorbent resin particles. See column 13, lines 55 and 56.

A person skilled in the art would have concluded that the complex oxide hydrate particles in the composition of claim 42, which are **on the surfaces** of the water-absorbent resin particles, are **NOT** the micro-filler particles of the Takai composition, which are **inside** the water-absorbent resin particles. Thus, Takai does not anticipate claim 42. Nor does it suggest claim 42 for the reason below.

As pointed out in MPEP § 2143.01,

> If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

According to Takai, "a large degree of enhancement of the absorption speed is realized when ... [the microfiller particles are] ... contained **inside** the water absorptive resin particles." See column 13, lines 53-56.

Thus, a skilled artisan would not have been motivated to modify the Takai composition by placing microfiller particles, containing silicon oxide or aluminum oxide, **on the surfaces** of the water-absorbent resin particles to arrive at the composition of claim 42, as, according to the above-mentioned Takai's teaching, this modification would render the Takai composition unsatisfactory for its intended purpose, i.e., enhancing the absorption speed.

In sum, Takai fails to suggest claim 42.

Kurihara does not cure the deficiency of Takai, i.e., failure to teach or suggest claim 42, i.e., a water-absorbent resin composition having complex oxide hydrate particles **on the surfaces** of the water-absorbent resin particles. Indeed, this reference does not mention water-absorbent resin particles at all, either modified or not modified.

In sum, claim 42 is not anticipated or rendered obvious by Takai and Kurihara.

Applicants now turn to claim 43. As this claim, covering, a method of producing the composition of claim 42, includes all of the limitations recited in claim 42, it is also

not anticipated or rendered obvious by Takai and Kurihara for at least the same reasons set forth above.

Double-Patenting rejection

The Examiner rejects claims 1, 4, 6-10, 12, 22-26, and 29-39 for obviousness-type double patenting.

More specifically, it is the Examiner's position that the rejected claims are rendered obvious by (1) claims 1-4, 6, 21-22, 24, 26, and 27-29 of copending Application 10/555,707, (2) claims 1-6, 10, 12, 14, and 18-25 of copending Application 10/570,965, (3) claims 1-13 of US Patent 7,510,988, and (4) claims 1, 6, and 11-15 of US Patent 7,473,470. See the Office Action, pages 5 and 6, the beginning of Item 2 through page 11, the end of Item 5.

To better determine whether any allowable subject matter in this application is indeed patentably indistinguishable from the references cited above, Applicants would like to address this double-patenting issue only after they overcome the obviousness rejection raised in the Office Action.

CONCLUSION

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment.

In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed.

Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

The Petition for Extension of Time fee in the amount of $150 is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account

authorization. Please apply any other charges or credits to Deposit Account No. 50-4189, referencing Attorney Docket No. 60004-111US1.

Respectfully submitted,

Date: 10-11-11

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